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10/754,371

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Naotaka Kobayashi

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EXAMINER

MYINT, DENNIS Y

ART UNIT

PAPER NUMBER

2162

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/754,371

Applicant(s)

KOBAYASHI ET AL.

Examiner

Dennis Myint

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/09/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/09/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-20 have been examined.

#### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims over claims 1-20 of copending Application No.11/056520. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-20 of copending Application No.11/056520 contain every element of instant claims 1-20 and as such anticipate instant claims 1-20.

Namely, claim 1 of copending Application No.11/056520 contains each and every element of instant claim 1, and therefore fully encompasses/anticipates instant claim 1 except for the limitations of "a file lock table" and a logical-volume lock table. However, the specification of copending Application No. 11/056520 expressly discloses said

Art Unit: 2162

limitations (Figure 14, Paragraph 0070-0072, and Paragraph 0090-0093 of copending Application No. 11/056520). Similarly, claims 2-20 of copending Application No. 11/056520 anticipate instant claims 2-20 respectively.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamamoto (U.S. Patent Number 6779063).

A per claim 1, Yamamoto is directed to a storage device controlling apparatus including a channel controller (Yamamoto, Figure 1, "STORAGE CONTROLLER" 26) having a circuit board on which a file access processing section (Yamamoto, Figure 1, "CONNECTING FACILITY", 40 and "CACHE MEMORY" 42) and an I/O processor (Yamamoto, Figure 1, "SCSI INTERFACE ADAPTER", "NFS INTERFACE ADAPTER", "CIFS INTERFACE ADAPTER", AND "HTTP INTERFACE ADAPTER") are formed, the file access processing section receiving requests to input and output data in files as units sent from at least one information processing apparatus (Yamamoto, Figure 1,

Art Unit: 2162

"HOST SYSTEM" 12 and Column 3 Line 19-64) via a network (Yamamoto, Column 4 Line 44-66, i.e. "an I/O read or write requests, and formulates the responses thereto for communication to the host system 12."), the I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device, said apparatus comprising:

an exclusive control section performing exclusive control of a file when said channel controller receives from said information processing apparatus said requests to input and output data of the file (Yamamoto, Figure 1, "CONNECTING FACILITY", 40, i.e. "The connecting facility is basically an arbiter that functions to arbitrate communicative access between the various interface adapters 26....32 and the drive interface adapters 46. In addition, the connecting facility 40 will also arbitrate access for the interface adapters 26 ....32 to the cache memory 42." );

a file lock table (Yamamoto, Column 7 Line 36-60, i.e. "The system administrator may create data structures, for example, in the form of the table 120 illustrated in FIG. 5." And Column 8 Line 35-64, i.e. "... the logical volume information could include information respecting whether or not the particular logical volume is accessible to certain types of access." ) to be used by the exclusive control section to perform exclusive control, at a file level, on file accesses received by the file access processing section (Yamamoto, Column 6 Line 16-19, i.e. "Control information for lock/unlock processing is stored in the cache memory 42 for the each of the protocols used the file system interface adapters 28, 30, 32, although other shared memory can be used if available", and Column 4 Line 43-67, i.e. "The common file system function block 73

Art Unit: 2162

will receive an I/O read or write request from TCP/IP interface function 70, convert the file interface information of the request to block interface information..."); and

a logical-volume lock table (Yamamoto, Column 7 Line 36-60, i.e. "The system administrator may create data structures, for example, in the form of the table 120 illustrated in FIG. 5." And Column 8 Line 35-64, i.e. "... the logical volume information could include information respecting whether or not the particular logical volume is accessible to certain types of access." ) to be used by the exclusive control section to perform exclusive control, at a block level, on file accesses received by the file access processing section (Yamamoto, Column 6 Line 16-19, i.e. "Control information for lock/unlock processing is stored in the cache memory 42 for the each of the protocols used the file system interface adapters 28, 30, 32, although other shared memory can be used if available", and Column 4 Line 29-42, i.e. "As will be seen, the storage controller 14 employs a logical volume management in order to share the resources of the physical disk units 20 between block system and file system interfaces.....").

As per claim 2, Yamamoto is directed to a storage device controlling apparatus according to claim 1, wherein said requests to input and output data are sent in accordance with at least two types of network file system protocols, and if, during said exclusive control which is performed upon accepting one of said requests to input and output data sent in accordance with one of network file system protocols, another said request to input/output data sent in accordance with another network file system protocol is accepted, an effect of said exclusive control is also reflected on the another request to input/output data (Yamamoto, Column 3 Line 19-54, i.e. "the storage

Art Unit: 2162

controller 14 includes four types of interface adapters: A SCSI interface adapter 26, a NFS interface adapter 28, a CIFS interface adaptor 30, and a HTTP interface adapter 28." and Yamamoto, Column 7 Line 36-60, i.e. "The system administrator may create data structures, for example, in the form of the table 120 illustrated in FIG. 5." And Column 8 Line 35-64, i.e. "... the logical volume information could include information respecting whether or not the particular logical volume is accessible to certain types of access.").

As per claim 3, Yamamoto is directed to a storage device controlling apparatus according to claim 1, wherein a memory area of said storage device is managed in a logical volume serving as a unit (Yamamoto, Figure 5 and 6, "LOGICAL VOLUME TABLE"), the logical volume being logically set on the memory area, and said I/O processor performs exclusive control of said logical volume in response to said exclusive control of the file (Yamamoto, Column 4 Line 29-42, i.e. "As will be seen, the storage controller 14 employs a logical volume management in order to share the resources of the physical disk units 20 .....").

As per claim 4, Yamamoto is directed to a storage device controlling apparatus including a channel controller (Yamamoto, Figure 1, "STORAGE CONTROLLER" 26) having a circuit board on which a file access processing section (Yamamoto, Figure 1, "CONNECTING FACILITY", 40 and "CACHE MEMORY" 42) having a circuit board on which a file access processing section (Yamamoto, Figure 1, "CONNECTING FACILITY", 40 and "CACHE MEMORY" 42) and an I/O processor (Yamamoto, Figure 1, "SCSI INTERFACE ADAPTER", "NFS INTERFACE ADAPTER", "CIFS INTERFACE

ADAPTER", AND "HTTP INTERFACE ADAPTER") are formed, the file access processing section receiving requests to input and output data in files as units sent from an information processing apparatus (Yamamoto, Figure 1, "HOST SYSTEM" 12 and Column 3 Line 19-64) via a network (Yamamoto, Column 4 Line 44-66, i.e. "an I/O read or write requests, and formulates the responses thereto for communication to the host system 12."), the I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device, said apparatus comprising:

a section (Yamamoto, Figure 1 "STORAGE CONTROLLER" 14) receiving from said information processing apparatus a request for information specifying a storage location of a file on a memory area of said storage device, and sending said information to said information processing apparatus (Yamamoto, Column 3 Line 19-55, i.e. "As is conventional, a block system protocol request will include a logical unit number, a block identification (ID) with the specified logical unit, and data link.");

a section (Yamamoto, Figure 1 "STORAGE CONTROLLER" 14) receiving a request to read data in blocks as units (Yamamoto, Column 3 Line 19-55 "a block system protocol request" ) from said information processing apparatus, in which the request is generated based on said information, and outputting an I/O request corresponding to the request to read data to said storage device (Yamamoto, Column 3 Line 19-55, i.e. "As is conventional, a block system protocol request will include a logical unit number, a block identification (ID) with the specified logical unit, and data link.");



Art Unit: 2162

a section (Yamamoto, Figure 1 "STORAGE CONTROLLER" 14) sending data read from said storage device to said information processing apparatus (Yamamoto, Column 4 Line 19-28, i.e. "receive read or write requests");

a file lock table (Yamamoto, Column 7 Line 36-60, i.e. "The system administrator may create data structures, for example, in the form of the table 120 illustrated in FIG. 5." And Column 8 Line 35-64, i.e. "... the logical volume information could include information respecting whether or not the particular logical volume is accessible to certain types of access.") to be used by the channel controller to perform exclusive control, at a file level, on file requests received by the file access performing section; and a logical-volume lock table to be used by the channel controller to perform exclusive control, at a block level, on file requests received by the file access processing section (Yamamoto, Figure 5 and 6 "LOGICAL VOLUMT TABLE").

As per claim 5, Yamamoto is directed to a storage device controlling apparatus according to claim 4, wherein a plurality of the channel controllers are provided therein (Yamamoto, Figure 1 "SCSI INTERFACE ADAPTER" 26, "NFS INTERFACE ADAPTER" 28, "CIFS INTERFACE ADAPTER" 30 and "HTTP INTERFACE ADAPTER" 32), and the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN (Yamamoto, Column 4 Line 44-66, i.e. "an I/O read or write requests, and formulates the responses thereto for communication to the host system 12." and Figure 1) and at least one enabled to communicate with the information processing apparatus through a Fiber

Art Unit: 2162

Channel . Official notes is taken that the concept of using fiber channel in networks is notoriously well known in the art.

Claim 6 and 7 are rejected on the same basis as claim 4 and 5 respectively.

4. Claim 1-7, 10, 11, 12, 13, 14, 15, 16, 17, and 20 are rejected under 35

U.S.C. 102(e) as being anticipated by Chen et al. (U.S. Patent Application Publication Number 2004/0233910).

As per claim 1, Chen et al. is directed to a method and system for storage area networking, wherein a storage device controlling apparatus including a channel controller having a circuit board on which a file access processing section and an I/O processor are formed (Chen et al., Figure 3, "Gigabit Ethernet Switch/Router" 270 and "Storage Server" 240 combined into "Switch/Server Combination" 300 and Paragraph 0038, i.e. "the switch 270 and the storage server 240 are integrated into a switch/server combination 300".), the file access processing section receiving requests to input and output data in files as units sent from at least one information processing apparatus via a network, the I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device (Chen et al. Paragraph 0039, i.e. "The figures show storage server 240 connected to storage devices 290 and 170, for example, via storage interfaces 260. Storage server 240 supports two types of data storage protocols."), said apparatus comprising:

an exclusive control section performing exclusive control of a file when said

Art Unit: 2162

channel controller receives from said information processing apparatus said requests to input and output data of the file (Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "File Level Access Control Protocol (FLAP)");

a file lock table to be used by the exclusive control section to perform exclusive control, at a file level, on file accesses received by the file access processing section ("File Level Access Control Protocol (FLAP)"); and

a logical-volume lock table to be used by the exclusive control section to perform exclusive control, at a block level, on file accesses received by the file access processing section (Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "These protocols permit shared access to files and folders on a file system"). Note that it is inherent that tables such as a file-lock table or volume-lock table are employed in these protocols (Device-Level Access Control Protocol for block and sector access and File-Level Access Control for file access).

As per claim 2, Chen et al. is directed to a storage device controlling apparatus according to claim 1, wherein said requests to input and output data are sent in accordance with at least two types of network file system protocols, and if, during said exclusive control which is performed upon accepting one of said requests to input and output data sent in accordance with one of network file system protocols, another said request to input/output data sent in accordance with another network file system protocol is accepted, an effect of said exclusive control is also reflected on the another request to input/output data (Chen et al., Paragraph 0039, "Device Level Access Control

Art Unit: 2162

Protocol (DLAP)" and "File Level Access Control Protocol (FLAP)" and These protocols permit shared access to files and folders on a file system" ).

As per claim 3, Chen et al. is directed to a storage device controlling apparatus according to claim 1, wherein a memory area of said storage device is managed in a logical volume serving as a unit, the logical volume being logically set on the memory area (Chen et al., Figure 8 "Virtual Device", "Virtual Disk 1"), and said I/O processor performs exclusive control of said logical volume in response to said exclusive control of the file (Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "File Level Access Control Protocol (FLAP)");.

As per claim 4, Chen et al. is directed to a storage device controlling apparatus including a channel controller having a circuit board on which a file access processing section and an I/O processor are formed (Chen et al., Figure 3, "Gigabit Ethernet Switch/Router" 270 and "Storage Server" 240 combined into "Switch/Server Combination" 300 and Paragraph 0038, i.e. "the switch 270 and the storage server 240 are integrated into a switch/server combination 300".), the file access processing section receiving requests to input and output data in files as units sent from an information processing apparatus via a network, the I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device (Chen et al. Paragraph 0039, i.e. "The figures show storage server 240 connected to storage devices 290 and 170, for example, via storage interfaces 260. Storage server 240 supports two types of data storage protocols."), said apparatus comprising:

Art Unit: 2162

a section (Chen et al., Figure 3, "Gigabit Ethernet Switch/Router" 270 and "Storage Server" 240 combined into "Switch/Server Combination" 300 and Paragraph 0038, i.e. "the switch 270 and the storage server 240 are integrated into a switch/server combination 300") receiving from said information processing apparatus a request for information specifying a storage location of a file on a memory area of said storage device, and sending said information to said information processing apparatus (Chen et al., Paragraph 0039, i.e. "... that transmits and responds to request for data to be read or written on a block level to storage devices.....");

a section receiving a request to read data in blocks as units from said information processing apparatus, in which the request is generated based on said information, and outputting an I/O request corresponding to the request to read data to said storage device (Chen et al., Paragraph 0039, i.e. "... that transmits and responds to request for data to be read or written on a block level to storage devices....." );

a section sending data read from said storage device to said information processing apparatus (Chen et al., Figure 3, "Gigabit Ethernet Switch/Router" 270 and "Storage Server" 240 combined into "Switch/Server Combination" 300 and Paragraph 0038, i.e. "the switch 270 and the storage server 240 are integrated into a switch/server combination 300");

a file lock table to be used by the channel controller to perform exclusive control, at a file level, on file requests received by the file access performing section; and a logical-volume lock table to be used by the channel controller to perform exclusive control, at a block level, on file requests received by the file access processing section

Art Unit: 2162

(Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "These protocols permit shared access to files and folders on a file system"). Note that it is inherent that tables such as a file-lock table or volume-lock table are employed in these protocols (Device-Level Access Control Protocol for block and sector access and File-Level Access Control for file access).

As per claim 5, a storage device controlling apparatus according to claim 4, wherein a plurality of the channel controllers are provided therein (Chen et al., Paragraph 0043, i.e. "Storage server 240 includes provisions for communicating with both SAN and NAS clients. IP driver 455c and NIC driver 460c are complimentary to IP drivers 455a, 455b and NIC drivers 460a, 460b, respectively..."), and the channel controllers include at least one enabled to communicate with the information processing apparatus through a LAN and at least one enabled to communicate with the information processing apparatus through a Fiber Channel (Chen et al. Figure 1B, "Prior Art"). Official notes is taken that the concept of using fiber channel in networks is notoriously well known in the art.

Claims 6 and 7 are rejected on the same basis as claims 4 and 5 respectively.

Claim 10 and 11 are rejected on the same basis as claim 1.

Claim 12, 13, 14, 15, 16, and 17 are rejected on the same basis as claim 2, 3, 4, 5, 6, and 7 respectively.

Claim 20 is rejected on the same basis claim 1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 8, 9, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view of Chiou et al. (U.S. Patent Number 6792507) and further in view of Kurio (U.S. Patent Number 5774640).

Chen et al. as applied to claim 4 above does not explicitly disclose that a plurality of channel controllers each have a circuit board and that said channel controllers includes a fail-over feature. However, Chiou et al. teaches a storage area switch system and method, wherein multiple line cards (various kinds of interface controllers) are used

Art Unit: 2162

(Chiou et al., Figure 3 and Column 6 Line 61-62). Additionally, Kurio teaches a method and system for a fault tolerant network interface controller, wherein up to four Ethernet controllers (more than one alternate controller) are used (Kurio, Column 8 Line 14-15). Kurio additionally discloses that, when the primary Ethernet controller fails, the process failover to the alternate Ethernet controller (Kurio, Column 8 Line 14-34). Second failover means, when said different interface controller fails, transfers processing of said different interface controller to normal interface controller include among said first interface controllers.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of employing controller cards as taught by Chiou et al., the feature of responding to failovers as taught by Kurio, and the method and system taught by Chen et al., so that the combined method, apparatus and system would constitute a storage device controlling apparatus including a plurality of channel controllers (Chiou et al., Figure 3 and Column 6 Line 61-62), each having a circuit board on which a file access processing section and an I/O processor are formed (Chen et al., Figure 3, "Gigabit Ethernet Switch/Router" 270 and "Storage Server" 240 combined into "Switch/Server Combination" 300 and Paragraph 0038, i.e. "the switch 270 and the storage server 240 are integrated into a switch/server combination 300), the file access processing section receiving requests to input and output data in files as units sent from an information processing apparatus via a network, the I.O processor outputting I/O requests corresponding to said requests to input and output data to a storage device (Chen et al. Paragraph 0039, i.e. "The figures show storage server 240 connected to



Art Unit: 2162

storage devices 290 and 170, for example, via storage interfaces 260. Storage server 240 supports two types of data storage protocols."), said apparatus comprising:

a section setting at least one of logical volumes logically set on a memory area of said storage device as a shared logical volume accessible from each of said channel Controllers (Chen et al., Figure 8 "Virtual Device", "Virtual Disk 1" and Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "File Level Access Control Protocol (FLAP)");

a section performing fail-over based on take-over information of each of said channel controllers, in which the take-over information is stored in said shared logical volume and used when one of said channel controllers takes over processing of another one of said channel controllers (Kurio, Column 8 Line 14-34) (It is well know in that that takeover mechanism or any other mechanism could be stored in any type of memory, including shared logical volumes.);

a file lock table to be used by the channel controller to perform exclusive control, at a file level, on file requests received by the file access processing section (Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "File Level Access Control Protocol (FLAP)"); and

a logical-volume lock table to be used by the channel controller to perform exclusive control, at a block level, on file requests received by the file access processing section (Chen et al., Paragraph 0039, "Device Level Access Control Protocol (DLAP)" and "These protocols permit shared access to files and folders on a file system").

Art Unit: 2162

Note that it is inherent that tables such as a file-lock table or volume-lock table are employed in these protocols (Device-Level Access Control Protocol for block and sector access and File-Level Access Control for file access. One of ordinary skill in the art would have been motivated to do so because the single point of failure will not disrupt communications between the system and other network users (Kurio, Column 8 Line 45-47) and

Referring to claim 9, Chen et al. in view of Chiou et al. and further in view of Kurio as applied to claim 8 discloses the invention as claimed. Chen et al. in view of Chiou et al. and further in view of Kurio is directed to a storage device controlling apparatus according to claim 8, wherein said fail-over is performed in any one of cases where a request to perform said fail-over is received from said information processing apparatus and where a fault occurs in said another channel controller (Kurio, Column 8 Line 14-34).

Claim 18 and 19 are rejected on the same basis as claim 8 and 9 respectively.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

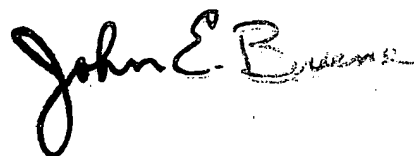
Art Unit: 2162

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint

AU-2162



JOHN BREENE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

BG